

CLAIMS

1. A wireless communication system for a being comprising:
a directional speaker attachable to the clothing worn by the being;
a microphone; and
a base unit coupled to both the speaker and the microphone to allow the being to use the system to communicate wirelessly with another communication device;
wherein
signals emitted from the speaker are directed towards at least one ear of the being from the worn position of the speaker;
the wireless communication system can be operated hands-free; and
the signals are directional to allow communication with enhanced privacy.
2. A wireless communication system as recited in Claim 1 wherein
the directional speaker generates ultrasonic signals; and
based on self-demodulation or mixing in air of the ultrasonic signals, audio signals are generated.
3. A wireless communication system as recited in Claim 1 wherein the speaker is selected from a group including a piezoelectric thin film, a bimorph and a magnetic transducer.
4. A wireless communication system as recited in Claim 1 wherein the speaker is configured on a malleable wire to set the direction of the audio signals.
5. A wireless communication system as recited in Claim 1 wherein the speaker is configured in a wedge structure to set the direction of the audio signals.
6. A wireless communication system as recited in Claim 1 wherein the speaker is configured in a grating structure to set the direction of the audio signals.

7. A wireless communication system as recited in Claim 1 wherein the speaker and the microphone are integrated to the clothing.
8. A wireless communication system as recited in Claim 1 wherein the speaker and the microphone couple to the base unit wirelessly.
9. A wireless communication system as recited in Claim 1 wherein echo cancellation technique is applied.
10. A wireless communication system as recited in Claim 1 wherein the system includes more than one antenna to improve antenna efficiency for wireless communication.
11. A wireless communication system as recited in Claim 1 wherein the system can be voice activated.
12. A wireless communication system as recited in Claim 1 further includes an indicator for providing an indication that the system is being used to communicate wirelessly with the another communication device.
13. A wireless communication system as recited in Claim 1 wherein the base unit is attachable to the clothing.
14. A wireless communication system as recited in Claim 1 wherein the system includes a power source that is attachable to the clothing, and is chargeable.
15. A wireless communication system as recited in Claim 2 wherein the system includes another mode of operation where the audio signals are generated directly from the speaker.

16. A wireless communication system as recited in Claim 15 wherein the another mode of operation is deactivated when the speaker is attached to the clothing.
17. A wireless communication system as recited in Claim 1 further comprising another directional speaker attachable to the clothing wherein the audio signals of the another speaker are directed towards another ear of the being from the worn position of that speaker.
18. A wireless communication system as recited in Claim 1 wherein the speaker, the microphone and the base unit are integrated into one package, which is attachable to the clothing.
19. A wireless communication system as recited in Claim 1 wherein
the base unit includes a monitor; and
the base unit includes capability to function as a computation device.
20. A wireless communication system as recited in Claim 19 wherein the system functions as a notebook computer or a personal digital assistant.
21. A wireless communication system as recited in Claim 1 wherein the signals can be personalized based on the hearing characteristics of the being.
22. A wireless communication system as recited in Claim 1 wherein the signals can be personalized based on the noise level in the vicinity of the being.

23. A wireless audio system for a being comprising:
a directional speaker attachable to the clothing worn by the being to allow the system to receive audio signals wirelessly from another system;
wherein
the wireless audio system can be operated hands-free;
the audio signals from the another system is not broadcasted to be heard by others in proximity with the being; and
signals emitted from the speaker are directed towards at least one ear of the being from the worn position of the speaker so that the audio signals are directional to allow receiving the signals with reduced chance of disturbing others in proximity with the being.
24. A portable computing system for a user comprising:
a directional speaker, which generates ultrasonic signals that are transformed in air to produce audio signals;
a microphone; and
a base unit with a monitor, coupled to both the speaker and the microphone, to allow the user to use the system to communicate wirelessly with another communication device;
wherein
signals emitted from the speaker are directed towards the user from the position the system is typically used;
the user can communicate with another communication device without the need to take the user's hands off the computing system;
the system is enabled for high-speed data as well as voice communication with a network; and
the signals are directional to allow communication with enhanced privacy.